a coupling operably connecting the throttle valve shaft and the air valve shaft and having an area wherein the air valve shaft and throttle shaft can rotate relative to each other through an angle which corresponds to a difference between the angle between the closed and fully open positions of the air valve and the angle between the idle and wide open positions of the throttle valve;

the coupling has a first half carried by the air valve shaft with two axially extending projections and a second half carried by the throttle valve shaft with two axially extending projections selectively engageable with the projections of the first half; and

a biasing member carried by the coupling and yieldably biasing the air valve to its closed position when the throttle valve is in its idle position or within the area wherein the throttle valve shaft and air valve shaft are relatively rotatable.

2. The carburetor of claim **1** wherein the area corresponds to an angle between 3° and 10°.

3. The carburetor of claim **1** wherein the coupling has a recess carried by one of the throttle valve shaft and air valve shaft and a projection received in the recess and carried by the other of the air valve shaft and throttle valve shaft.

4. The carburetor of claim **1** wherein the coupling is constructed such that when the throttle valve is in its idle position permitting an idle air flow through the mixing passage the air valve is in its closed position at least substantially preventing air flow through the air passage.

5. The carburetor of claim **1** wherein both the air valve and throttle valve are butterfly valves.

6. The carburetor of claim **5** wherein the air valve is generally elliptical.

7. The carburetor of claim **5** wherein the air valve has an inclined edge adapted to engage the body when the air valve is in its closed position to substantially prevent air flow through the air passage.

8. The carburetor of claim **4** wherein the throttle valve is moved from its idle position towards its wide open position by between 5° and 7° before the air valve is moved from its closed position.

9. The carburetor of claim **1** wherein the biasing member is a spring.

10. A carburetor comprising:

a body having a scavenging air passage and a separate fuel and air mixing passage;

an air valve carried by the body in the air passage and rotatable on an axis generally transverse to the air passage between closed and fully open positions;

a throttle valve carried by the body in the mixing passage and rotatable on an axis generally transverse to the mixing passage between idle and wide open positions, the air valve shaft being coaxially aligned with the throttle valve shaft; and

a coupling disposed between the air passage and the mixing passage and having an axially extending projection carried by the air valve shaft selectively engageable with an axially extending projection carried by the throttle valve shaft and the projections being configured so that the air valve is closed when the throttle valve is in its idle position, the throttle valve can be opened from its idle position to at least some angle before the air valve is moved from its closed position and thereafter further opening of the throttle valve toward its wide open position simultaneously moves the air valve toward its fully open position.

11. The carburetor of claim **10** wherein the coupling is configured so that the throttle valve is movable from its idle position toward its wide open position through an angle of 3° to 10° before the air valve is moved from its closed position toward its fully open position.

12. The carburetor of claim **10** wherein the air valve has an inclined edge configured to engage the body when the air valve is in its closed position to substantially prevent air flow through the air passage.

13. The carburetor of claim **10** which also comprises a spring carried by the coupling and yieldably biasing the air valve to its closed position when the throttle valve is in its idle position.

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